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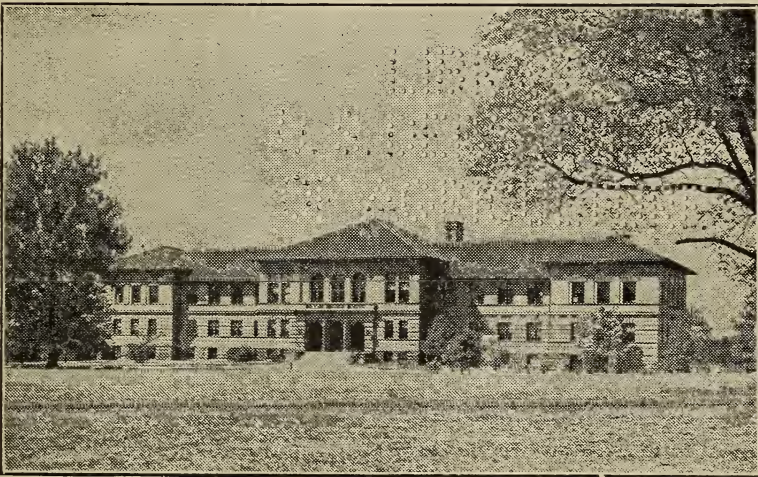
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VOLUME XVII.

NUMBER 1

# THE AGRICULTURAL STUDENT

A MONTHLY MAGAZINE DEVOTED TO AGRICULTURAL EDUCATION



TOWNSHEND HALL

SEPTEMBER, 1910

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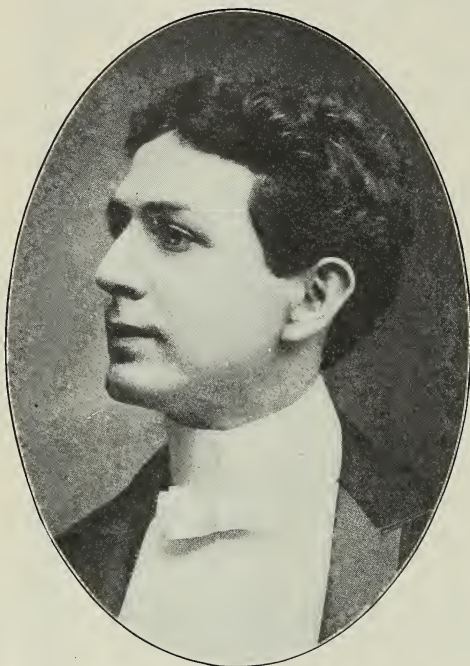
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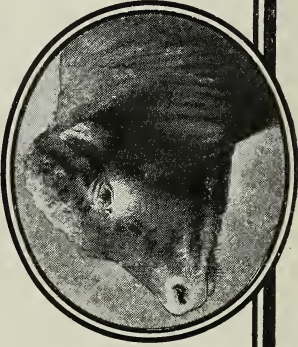
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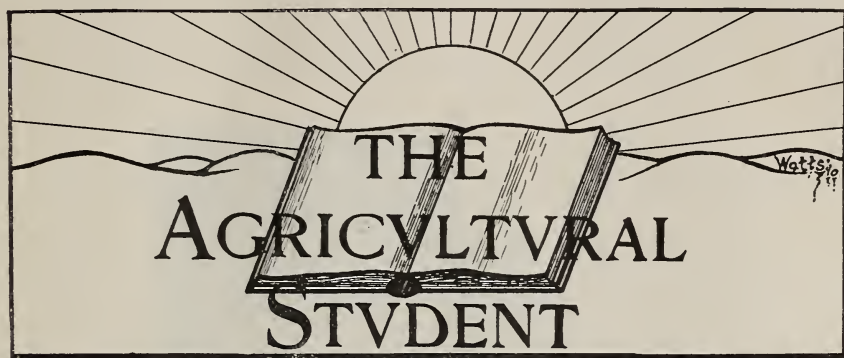
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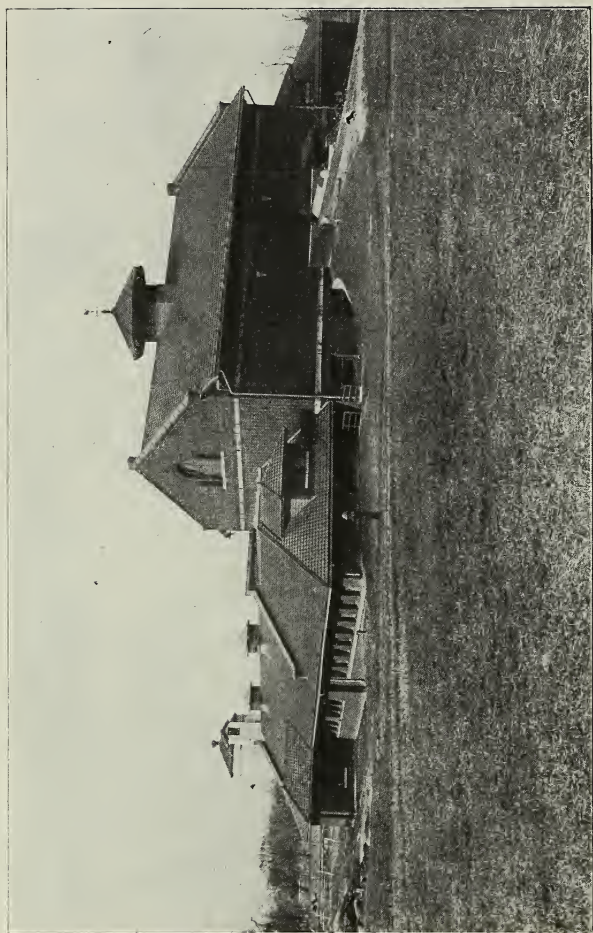




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Judging Pavilion, O. S. U.

# THE AGRICULTURAL STUDENT

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Vol. XVII. OHIO STATE UNIVERSITY, COLUMBUS, SEPTEMBER, 1910 Number 1

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## Live Stock at Ohio State University

By Prof. C. S. Plumb

Many persons who read *The Agricultural Student* are unfamiliar with the live stock equipment of the Ohio State University. Those who were students here eight years or more ago, unless they have kept in touch with affairs here, must have a very inadequate conception of present condition.

When the writer came to Ohio State in 1902, the University owned a herd of about 40 dairy cows, most of which were grades, a few Poland China hogs, one large Yorkshire sow, and about a dozen horses. There was not a steer or a sheep on the place. The Shorthorn, surely the most widely distributed one breed of cattle in Ohio, was unrepresented by pure-bred stock.

In 1902, the trustees appropriated out of general University funds, \$3,000 for purchasing live stock, and in December of that year five head each of high grade Aberdeen Angus, Hereford and Shorthorn yearling and two-year-old steers were purchased for class work. The following spring a number of pure-bred Shorthorn and Jersey females were bought. From that period to the present day there has been a steady and important development of the herd. In December, 1903, some pure-bred Shropshire ewes and some Cotswold wether lambs were bought. We also bought that year of Richard Gibson, of Canada, the champion Shropshire pure-bred

wether lamb of the International Live Stock Exposition at Chicago.

Since 1902, the University trustees have provided about five thousand dollars for live stock, and the state legislature has made two appropriations of ten thousand dollars each and one of five thousand. This money has been carefully used in purchasing specimens of horses, cattle, sheep and hogs. Some will be inclined to regard this as a large sum of money, but when we consider that the University only desires animals of superior pedigree and individual merit, persons well advised will recognize that these appropriations will not go far with existing prices. Many horses have changed hands at over \$1,000 each, and Ohio men have sold breeding cattle on various occasions at from \$500 a head up. One Berkshire boar, Longfellow Premier C, sold in 1909 in Ohio at \$2700, and two Duroc Jersey breeders in this state sold three boars at a total of over \$5,000. Inasmuch as one may count on at least sixteen important breeds, for class room work, for the different classes of farm animals, to purchase high class specimens in the open market requires ample funds.

At the present time the University herd consists of about 25 horses, 75 cattle, 50 sheep and 100 hogs, represented by all ages. We have pure-bred Percheron, Clydesdale and Hackney horses,



perior specimens of some of these breeds, notably Jersey, Holstein-Friesian, Shorthorn and Aberdeen Angus. There are imported Jersey, Guernsey and Kerrys in the herd. Mr. E. W. Oglebay, of Cleveland, O., and Elm Grove, W. Va., gave us five Kerrys, among which is an aged imported cow that was reserve champion at the Royal Dublin show in Ireland. We keep at all times

some very useful breeding ewes, and a choice collection of yearling Southdown and Shropshire wethers.

The herd of swine contains Berkshires, Duroc-Jerseys, Large Yorkshires, Lincolnshire Curly Coated and several cross-breeds, especially produced for feeders for class work and show. Until the past year we have always kept Poland Chinas, but disposed of our stock,



**Black's Ohio Champion, Shown by D. W. Black in Champion Car Load Lot Yearling Steers at 1906 International. Owned by Ohio State University, 1906 and 1907.**

a number of show steers, up to two years of age, that are very useful in the class room in judging. At the present time we have nine pure-bred Shorthorn steers of a very high degree of excellence.

The flock of sheep consists of Shropshire, Southdown, Cotswold and Merino. We have just purchased an imported Shropshire yearling ram, and last year bought the first prize class B Merino ram lamb in an unusually large competition at the Ohio State Fair. We have

and a Morgan stallion of choice breeding. In 1909, through McLaughlin Bros., we imported four Percheron yearling fillies from France, and they have done very well, indeed. There are good representatives of Jersey, Holstein-Friesian, Guernsey, Ayrshire, Devon, Kerry, Red Poled, Shorthorn, Aberdeen Angus and Herefords in our herd of cattle. On various occasions we have purchased suit not being satisfactory. Before this article appears in print, we shall have secured a new stock of Poland Chinas.

We keep choice specimens of these different breeds, and sell surplus stock for breeders and to the butcher. For years barrows of our breeding have won the highest honors at the International Live Stock Exposition at Chicago, we having numerous champion and grand champion ribbons in the University collection.

The old horse barn, familiar to the students up to two years ago, has been

series of pens, with outlets leading from the south side of each into the feed lot. This summer a much needed set of new hog lots is being constructed, just south of the old cattle barn, and these will add greatly to convenience of handling and give better feeding facilities.

Each year sees a distinct improvement in the average character and condition of the stock. Inasmuch as the



O. S .U. 127, Champion Berkshire Barrow, 1907 International. Bred and Shown by Ohio State University.

demolished, and the horses are now all kept in the new horse building which stands next to West Woodruff Ave., at the northwest corner of the Campus. The cattle are kept in the fine big cattle building, just south of the horse building. The old wooden cattle barn on the hillside has been converted into a pigery on the lower floor, and the dairy cattle wing has been changed into a

live stock at the University is primarily for the benefit of the students, the need for animals that will represent the best of their kind, can be readily understood. For the benefit of any who may read this that are not students, it is to be said that visitors to the herd are at all times welcome, and that as a rule a qualified attendant is at hand to show the stock.



## The Farmer and the Fair

By Thos. D. Phillips

Nearly every farmer in Ohio has an opportunity sometime during the year to attend an agricultural fair or exposition. This state has about seventy-five fairs that are recognized by the State Board of Agriculture, besides the great Ohio State Fair, held annually at Columbus. Great? Yes, the greatest state fair in the United States in grandeur and magnitude, and yet comparatively few people who attend it realize the fact, that Ohio leads them all.

At all fairs, great or small, are exhibits of farm and industrial products, that are brought there primarily for the farmer and his family to see and study comparatively if they so desire. Farmers are awakening to the fact that these are for their benefit, and that there is a near relation between the fair and their work. They are seeking better things in agriculture, and there is no better place to see and hear of good things than to go to a place where suggestion, inspiration and education are on every hand. Better crops are the offspring of more thought on the part of the producer, and any farmer who visits a fair will see and hear things that will find their way into his consciousness, and then into his practices.

We do not believe that any man who raises mongrels cannot see greater merit in creditable pure breeds. The sight of a superior pure-bred animal is an eloquent lecture to anyone. Optical instruction is a dominant feature on a modern state fair grounds, and the opportunity of the year for acquiring knowledge amounts to a rich privilege. But, remember, that it is not how much we see or hear, but how thoroughly we understand and appreciate the things

we see and hear, that determines the value of our attendance at a fair or exposition. The person who sees everything at a large fair does not appreciate anything very much.

Fair-goers whose time is limited to one or even two days will usually be found where their special interests are satisfied, and the majority of these will cluster around the exhibit which represents the greatest activity for that particular section of the country in which the fair is held. For example: Go to the New York State Fair and you will find the largest exhibit in any one line is in Dairy Cattle. This is supplemented with displays, of all sorts of equipment, for modern dairies and dairy farms. This means that New York is a great dairy state. The farmers visiting the fair are very much interested in anything that pertains to this work, and it is not an uncommon sight to see several hundred men and women stand about the ring, regardless of the hot sun, and watch the judge place the animals, in the respective classes. Of course, New York has other interests in agriculture, but dairying is predominant.

At the Vermont State Fair the situation is similar, only the dairy business is not quite so highly developed. The people are interested in other lines, as is indicated in the Morgan horse show, the greatest in America, and the largest Oxen show in the United States.

At the New Jersey State Fair last year the classes for beef cattle were stricken from the list, and the money used to promote the dairy interests. This shows us the trend of agriculture in that state.



If one would visit a southern state fair he would see the majority of the people gather around the grand stand to watch the racing, it being the most attractive feature for southern people.

At the Illinois State Fair one sees indications of the high degree of agricultural development in the corn belt. Last year 1,047 hogs, almost all of which competed for prizes, were shown at that fair. All other live stock exhibits included some of the best animals in the United States. The farm machinery exhibits are among the largest that are shown at state fairs.

Now coming to Ohio we find an exposition that is mentioned in history as being the leader of state agricultural expositions. Its exhibits and displays are second to none, and the amusements provided are not of the debasing and corrupt class that are found on many fair grounds. Ohio's reputation as the leader of the State Fairs has been built on the firm foundation of education. The high standard to which she has forced herself is due in a measure to the absence of demoralizing amusements, either on or about the grounds.

However, entertainment and recreation go hand in hand with education

and must be provided so that each and every visitor can have what they want in the way of amusement, as far as it is practicable to provide.

Exhibits are placed there as business propositions on the part of the producers. They try to place before the farmers the things in which they are most interested, and the things which will help them to build up their profession and to become better producers than they now are. They are not limited to a select few who think they represent all that is good and great, but are open to any who are willing to be measured beside their competitors in the presence of an interested public.

Much time and money are expended in preparing exhibits and every farmer should show appreciation for the results of the other fellow's work, when it is placed before the public eye, if it is shown to be superior.

If appreciation can be developed in a man to a higher degree than ever before, by reason of his attendance, then we may consider his trip a successful one, from many standpoints, but if his appreciation is not strengthened, he has missed an opportunity.



## Why Study Chemistry?

By Prof. F. C. Bear

Formerly the idea prevailed that certain subjects in high schools and colleges were studied because of their value in developing the brain cells of the student. That has been the reason assigned for the study of Greek and Latin, mathematics, philosophy and others. Today we believe that the thing studied is of value mostly because of the information gained. We are endeavoring to gain useful knowledge and to get at the truth. Incidentally we take the mind training also as a secondary benefit to be derived. The purposes of an education are that we may better play our part in society and that we may be more efficient workers in our chosen vocation.

An agricultural education has for its purpose, primarily, the increasing of the efficiency of the young men of the farms. Otherwise the student would register in the College of Arts and take the courses offered for mind training and general polish. To be a graduate of an agricultural college means that you have made a systematic effort to become better equipped for your life-work. If your education has not made you a more efficient member of your group in society it has not fulfilled its purpose.

Why study chemistry? Surely not with the idea of training the mind of exercising the brain. Many other sciences will do that as well or better. Not alone because of the fact that it is the only exact science taught in the agricultural college, although that may give it some added value. If the student is going back on the farm, chemistry is studied because it is fundamental to the understanding of the principles of

soil fertility, of feeding, and of dairying. If the student is planning to take up investigational work, chemistry is the science which must be mastered in order to best understand the other natural sciences. Many men today in our agricultural colleges and experiment stations are handicapped because they do not know chemistry.

But we are taking up this discussion for the purpose of showing that the practical farmer cannot afford to leave college without having had a course in applied agricultural chemical analysis. There is an understanding which comes with the actual analysis of a substance which cannot be gained in any other way. The word phosphorus to the average farmer is rather an abstract term, but to the man in the laboratory who has made a determination of the amount of phosphorus in a sample of fertilizer or in a sample of soil, it has a very definite meaning. The analyst has the added satisfaction of "knowing what he knows."

Animals are fed economically when they put on the greatest number of pounds gain with the least amount of feed per pound of gain. The husbandman must take into consideration the relative amounts of carbohydrates, fat and protein in the feeding stuffs fed. What do those terms mean to the average man? What do they mean to the man who has determined to his own satisfaction in the laboratory the relative amounts of these materials present in some feeding stuff? The latter has the information that enables him to make the feeding problem a science.

This is not intended to mean that only the man who has made these determina-

tions in the laboratory will be successful back on the farm.

It is a fact that some of our best students in the laboratory would not be good farmers. Success in farming means much more than the ability to pass off any kind of college work. But this is intended to mean that a course in agricultural chemical analysis will give a man an understanding of these things which the man without the training can never appreciate.

Men are prone to believe that the things which were once practiced in the good old days are the things which are still best to follow. Or by a philosophy of their own they formulate some theories of their own. Too much farming is theoretical farming. The reason is has taken the science of chemistry itself so long to develop is because men have been content to philosophize on what would happen without trying it out experi-

mentally. Very little progress was ever made until the laboratory method was used.

Actual chemical analysis is to the student of agriculture what the a, b, c's are to the child in the first grade. The child will grow and develop without being able to read, but he must needs take the word of some one who can read. A little time on his part would not only have made him independent but would have enabled him to be of more use to others. A little time on the part of the student of agriculture will put him in position to know, and knowing, he will not only be more efficient himself but will be able to be of more service to the other members of his group in society.

This article was written in answer to the statement so often made by students that the laboratory part of chemistry is of little importance.

## Co-operation in India

By Sam Higginbottom

India is a land of extreme poverty. Sir William Hunter says one-third of the population, from the cradle to the grave, does not have sufficient food to maintain them in a state of physical efficiency for work. This poverty is due to several causes, chief of which is "caste," which by its limiting of the work that an individual may do, prevents that flow of labor from one channel to another which is necessary for progress. Then, too, the habits of the people, their ignorance, the way they have been oppressed, the climate, have contributed not a little to make them hopeless and indifferent.

The great task now is to find a remedy for this poverty which is robbing a nation of its manhood and independ-

ence. The natural resources of the country are great. The soil is wonderfully productive. For centuries it has produced without receiving fertilizers in the sense in which Americans use the term. The problem, then, is to get the people of India to rightly use the wealth which lies at their feet. The foundation or unit of agricultural life in India is the village, and there has been bitter strife between villages in their struggles for grazing land, forest ranges, water for irrigation. Each village has striven to be independent of its neighbors. This has fostered a spirit of suspicion and distrust that has made the introduction of new ideas very difficult, but after some years of trial and experiment it is safe to say that the



principle of co-operation has at last been established in the Indian agricultural community. The type introduced into India has been a modified Raiffeisen bank system. The characteristics of this system in India are:

I. It is decentralized. That is, each village or collection of villages that forms a bank is not associated with any other. There is no large central bank.

II. The membership is limited so that every member knows every other member of his own society or bank. This means that when any member wishes to borrow every other member knows whether the one wishing to borrow is worthy, is temperate, industrious, frugal, and likely to pay up when his instalments fall due.

III. The liability is unlimited. This keeps every member awake to the fact that if any member fails to repay his loan the other members make it good. This means that every borrower is watched to see that he uses the borrowed money for the proper purpose, that the borrower do not neglect his work, and oftentimes in a time of sickness or stress brings him help which otherwise would not come, for the other members of the bank in saving him are saving their own as well.

IV. The objections for which money can be borrowed are limited. Money will not be lent for litigation, for marriage ceremonies, for various other social functions that the Indian ryst considers a legitimate excuse for bankrupting himself.

Money is not needed to buy land, for each tenant in the United Provinces, if he belong to an agricultural caste, has inalienable rights in the soil and his rent cannot be raised except after impartial investigation by an officer whose business it is to safeguard the

interests of the tenant farmers. For permanent improvements, such as canals, wells for irrigation, drainage, the government of India has the "talsavi" system, by which money can be borrowed at three per cent. by annum, to be repaid from thirty to forty years.

So, then, money is only needed for stock, seed, implements, and to free a borrower from the hands of the village money-lender, whose rates are never less than thirty-six per cent. per annum and often run up to one hundred per cent. per annum. Money borrowed for such purposes is secured at from six to eight per cent. This money was at first provided by the government, as few Indians would lend money at such low rates of interest, but now where the bank has been in operation for some time the members themselves are in a position to furnish some capital and the remainder is now readily obtained from the wealthier land owners. Officials of government whose duties take them into the villages declare that a village that has a bank can be distinguished from those that have not. It looks more prosperous. Oftentimes a bank will purchase an implement which no one individual could afford to buy and then rent it round to the separate members. As for instance, sugar cane rolling mills.

So far the extent of the co-operation has been only to buy, but an effort is now being made to develop the selling side, though the individual distrust and love of dickering have so far prevented a forward step in this direction.

Wherever the co-operative system has had a fair trial, the farmers are enthusiastic in its favor and in it, coupled with education, lays the fairest promise of the industrial regeneration of the three hundred millions who call India home.

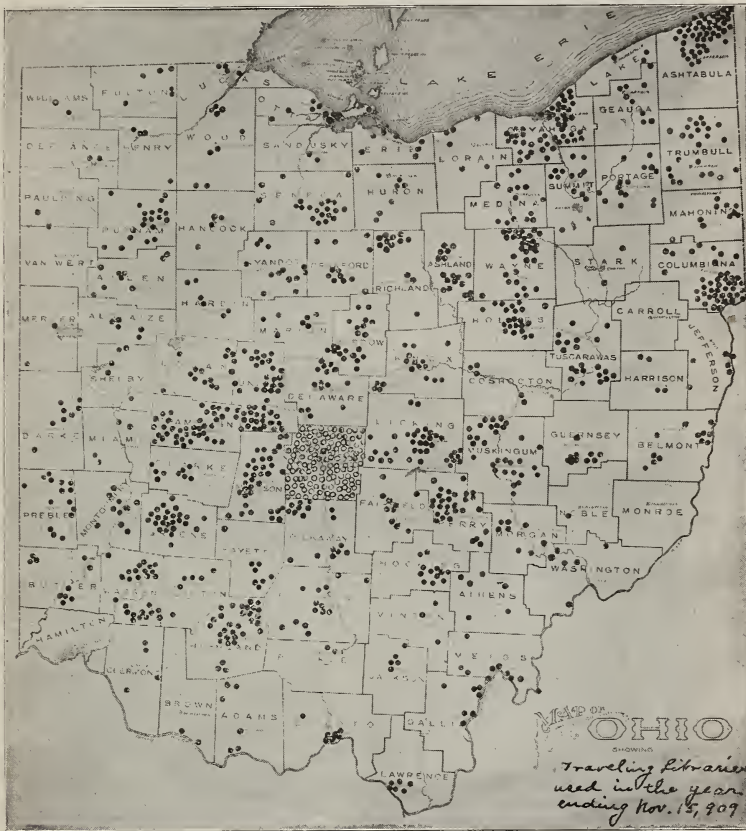
# Ohio's Traveling Library Department

By Ida K. Galbreath, Superintendent

In 1896 there was in Ohio a man of culture and large heartedness, one whose goodwill for his fellowmen was expressed in the establishment of the Traveling Library Department. Ruth-erford P. Hayes realized that in Ohio

ship. A circulation of three hundred books the first year has grown to fifty-four thousand last year.

Not only should this be of interest to the farmer's boy who may not leave home for a broader education; it should



Each Dot Indicates a Traveling Library and the Point to Which it was Sent in the Year Ending November, 15, 1909.

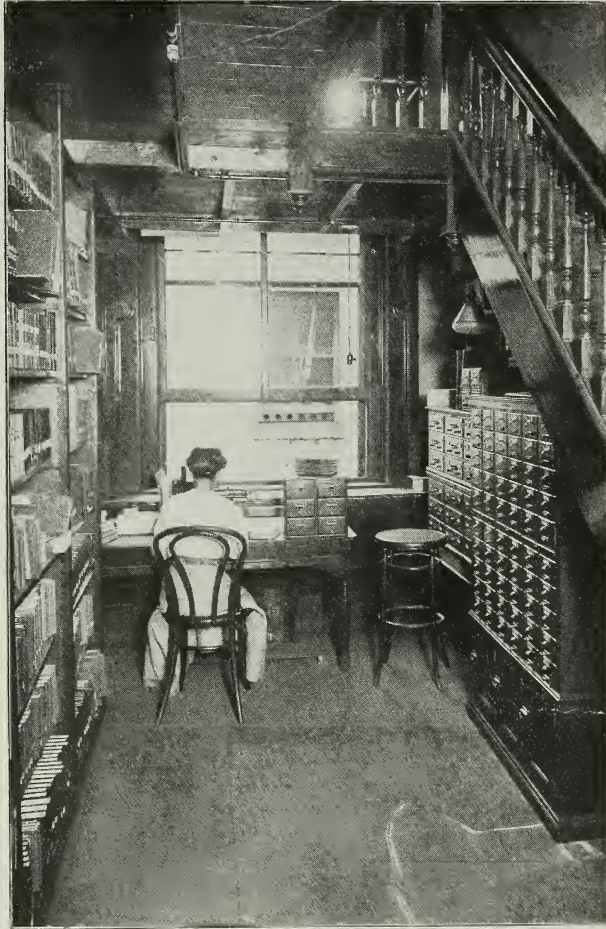
were thousands and thousands of people enjoying no library privileges of any kind, for whose benefit he framed the law known as the Garfield Act, which made possible the work of the Traveling Library Department. The splendid growth of the work testifies to his fine appreciation of Ohio's citizen-

be of special importance to him because it brings to him in his home the facilities for study and improvement in his chosen work. But few farmers may have an agricultural degree from college or university, but each may use the opportunities afforded him by the Traveling Library Department.



This department will send to any person in Ohio five agricultural books, selected to suit the needs of the borrower, to be used three months; or it will send to any organization, such as grange, reading circle, study club, etc., forty to

supply the needs of the farmers of the state. While the teacher, the lawyer or other student will find many books in the department to satisfy his researches, the greatest effort has been made to secure every book of agriculture that will



Traveling Library Accession Department, Where Six Thousand New Books are Cataloged Each Year.

sixty volumes selected to suit the members of the organization, to be used eight months before returning. Thus the farmer may have his books of scientific agriculture and rural economy constantly with him for study or for reference. It is one of the chief purposes of the Traveling Library Department to

help the Ohio farmers. Books of special value have been purchased in large numbers, fifty to one hundred copies each, so that more than one patron at a time may enjoy their benefits.

The department was organized in 1896 and many granges and other farmers' organizations which began borrow-



ing at that time or the year following are still most enthusiastic patrons.

Blendon Grange, Westerville, Ohio, borrowed its first Traveling Library December 20, 1897. Since that time this grange has borrowed twenty-four libraries, averaging thirty-six volumes each. Miss Clara B. Moody and Miss Matthe Jameson are the two members who have been most active in securing books. This grange is never without a miscellaneous selection of books, including agriculture, fiction, travel and children's books. Members are questioned as to their special interests and books on those subjects included in their Traveling Libraries.

In addition to the books circulated through farmers' organizations or sent to individual farmers, many thousand books are sent each year into the rural schools of the state. In these libraries will be found the best books for children of all the grades, agricultural books, when requested, and books for parents and teachers as well.

Last year 8,000 volumes of scientific agriculture were loaned throughout the state, and more than 20,000 volumes of general literature were loaned to Ohio's school children.

The Traveling Library Department belongs as distinctly to the citizens of Ohio as does any city library to the in-

habitants of the city. It is supported by state appropriation and is maintained for the benefit of all the people of the state who will avail themselves of its privileges. It is an institution almost without "red tape." A simple form for application for books will be sent to any one requesting it and, when filled out and returned to the department, together with a statement of the class of books desired, fifty or sixty volumes will be issued to be used eight months before returning or transferring to a neighboring organization. Borrowers must pay all transportation charges. When two or three neighboring organizations wish to use the same selection of books it may be transferred from one to another without returning to Columbus, thus greatly reducing the transportation charges for each organization.

There is an old saying, "First come, first served," which holds good in the work of this department as elsewhere. Requests for libraries are always taken up in the order in which they are received, every demand being supplied until the books are all issued. Those in charge of the work earnestly wish for a larger circulation of books among the farmers, and through the rural schools of the state.

## The New Life on the Farm

By Charles Moreau Harger

Have you been out on a modern farm lately—not a fancy country place owned by a millionaire who farms as a pastime, but on a real farm whose owner must earn bread and butter for himself and his family from the products of his fields?

Perhaps you once lived on a farm, and you recall the cumbersome implements

and the vast amount of hand labor. You know in a general way, of course, that many things have been invented to make the work of crop-raising easier; but that is only a part of the farmer's new advantage.

"How much did you make last year?" you ask of the modern farmer.

"Let me look at my books—"

So he keeps books! In the corner of the living-room is a roll-top desk. He has a set of accounts by which he knows just what crops, what animals, and what methods of selling are profitable and what entail a loss.

One day he decides to have a sale—a “public vendue” you used to term it. He takes the “copy” for his advertising to the newspaper office—it is typewritten. So there is a typewriter, too! He has farm stationery, with a name for the farm in the upper right-hand corner—perhaps a picture of his house beneath it. In the left-hand upper corner of the sheets on which is written the list of articles the printer notes something like his: “Franklin Mason, Proprietor, R. F. D. 9.”

That means he is a business man, too—the real secret of the modern farmer’s success. He indulges no more in speculation and guesswork, but follows a system.

Who has taught it to him? Principally the younger generation, the hundreds of graduates of agricultural colleges, who take out of the older farmers ideas and plans that mean greater profits, less labor, and more comfort. They substitute for the windmill a gasoline engine; they attach to the power a feed-grinder, a milking machine, and a waterworks system that makes bathrooms and modern laundries possible. They fit the house with a furnace and light it with gas. They plan intensive agriculture, balanced nutrition, and economic breeding. A whole new chapter of history has been opened in the fields.

Take the average farmer who twenty years ago started on a Western homestead. Think of the things he did not know. His plans were limited largely to the putting in of two crops—wheat and corn—and he did not understand all the methods of doing that. He followed the

system of his father before him, and trusted to fortune. If he harvested a crop, he took the money and paid his debts. If he did not, he increased his mortgage and tried again. He had no resource that was certain to turn in enough on which to support his family.

Today he has wheat and corn as before, but he reads in the bulletins of the Agricultural Department and the State Agricultural College what are the best times to plant, what the best seed, and how best to prepare the ground. College-bred wheat increased the yield of Kansas fields 4,000,000 bushels last year, worth \$4,000,000 at market price.

Over on the creek bottom he has a field of alfalfa—twenty years ago alfalfa had not been heard of by the average farmer. He cuts from it three or four crops a year. Then he threshes the seed from the last crop and sells it at \$7 a bushel.

His cows pay a regular sum into his bank account monthly. It may be only \$25, or it may be \$30, on the 20th of the month—but it adds to his ability to buy groceries and clothing, and he can plan ahead with surety that he will have that much in cash and need not wait a year for his money to come in a lump, if indeed it comes at all. That makes farming a business.

Then there are the relations toward the outside world. It is a new application of business methods to the farm.

Last summer a company of college boys from Indiana went out into central Kansas to help harvest the wheat. They worked well, and added a touch of cheer to the evening gatherings around the big red barn. To be sure, they insisted on telephoning to town every evening to learn the base ball scores of the day, chalking the records on the side of the barn for reference and discussion, and they were a bit

finicky about wearing their coats at table when the housewife was present. But the farmer liked them, and it was with some pleasure that on the last Saturday he handed to each a check on the Farmers' State Bank, in which he was a stockholder.

A little dubiously they looked at the pieces of blue paper.

"What shall we do with them?" asked one.

"But who will identify us?"

The farmer saw the point, and collected the checks, which he tore to bits. He hurried to town and came back with a roll of bills, with which he paid off the men. He had become so accustomed to issuing checks for all the transactions of the farm that he did not realize the position of these strangers.

The average farmer comes into the newspaper office to pay his subscription. He takes out a check-book and, though the sum is only a dollar, it is paid through the bank. Where ten farmers had bank accounts two decades ago, a hundred do today. They have learned the value of modern methods of finance. This makes them better managers; it keeps in order their business affairs, which the old-fashioned ways never did.

Much has been written of the farmer's motor car. He possesses it exactly as he did a rubber-tired surrey before it, and a spring wagon before that, because it is the need of the hour for his transportation—and because he is able to purchase one at the moderate price that now prevail for serviceable machines.

But the motor car means less to the farmer than some new implements that are coming into use on the modern farm. If you lived on a farm as a boy, you probably worked at the business end of a straw-carrier during threshing time. You remember the long hours in

dust and straw that nearly suffocated and drowned you. Now there is nothing of the kind. The straw is stacked by the directions of a man who manipulates a long tube through which a strong current of air forces the straw—"wind stacker" they call it. You also helped carry bushel measures of grain from the separator to the wagons, making the record as you toiled. Now the wheat is weighed and measured as it runs through a pipe from the machine and pours in a ruddy stream into the wagon. It takes less help to do the work than ever before.

Or you followed the plow up and down the field, stubbing your toes and growing exasperated when the horses, fly-tormented, tangled themselves in the reins and traces.

"Plowing is always hard work for the horses," you remark to the farmer.

"Oh, we don't use horses now," is the reply, if you are on a thoroughly advanced place. He takes you to the field, where is progressing a queer, misshapen, puffing machine behind which trail various attachments—something like a stranded airship. It is the modern ground-preparer—for it is more than a plow.

The foremost portion of the implement is a gasoline or steam engine on big, broad wheels. Its driver has about as difficult a task as the careful chauffeur on a city street. Behind are four, six, or eight plows, each turning over a chocolate furrow as clean and neat as the best plowman could do it. Yet behind that comes a series of wheels and teeth that smooths and presses the broken ground, these plows and harrows being guided by another man, who rides at the rear of them. When the machine has passed, the earth is plowed and pulverized, ready for seeding. It makes a business of even the prosaic process of



plowing—robbing it of its poetry, perhaps, but lessening the cost and saving horse-flesh.

It will be but a few years when, with the motor truck, the motor car, and the motor implements, horses will be needed on the farm only for emergencies and for doing the work in small fields where it is difficult to handle the large machines.

What does this mean to the farmer's family?

The boy who formerly spent three hours in the morning and three more in the evening milking cows—no pleasant job in summer-time, and not much better in winter—now with a milking-machine saves two-thirds of the time and is able to enjoy a little leisure. He can go to town or visit with the neighboring boys. He feels that he is a business man and not a toiler without hope of relief.

"I knew I could make money with a dairy herd," one farmer expressed it, "but I could not put my boys at the drudgery. It meant that they would not have time even to go to church. Now they can enjoy a little of life, and I think they will stay with me."

That is what the farmer seeks—help from his boys—and when they hurry to town it means that he must go too. If they can be induced to think of farming as a business, there is hope of keeping them.

And the farmer's wife and daughters—something is lifted from their shoulders by the new era. The early settlers of the West, and even some within twenty years, were exemplars of the old way of doing things. Said a housewife who went through the homestead era:

"For years I washed at a tub as my grandmother did, and my back is yet bent with the exertion of those days. Now the washing is done by a machine

run by an engine at the barn. I churned in an old wooden churn—how many hot mornings I lifted that old dasher! Now the separator takes the butter-fat from the milk before it comes to the house. What butter-making we do is in a barrel churn, turned by the same engine. I ironed with the old-fashioned iron heated on a scorching stove that made the kitchen like an oven. Now I have an ingenious gas-heated flat-iron and my ironing-room is in the screened back porch, where there is breeze and comfort. Then we went to town once a week in a lumber wagon; now we go almost every evening if it is pleasant, and cover the distance, ten miles, in half an hour in a motor car. No, I cannot keep domestic help on the farm; but neither can many of my friends in town. However, I have a chance to care for my work without being a slave, and that is something I never did before." In some instances the family reads by electric light and sews by electric power generated on the farm.

Along with this the farmer takes an interest in the business affairs of the community. He has put some of his savings in the bank, and so is brought into touch with the other prosperous farmers of the township. He has an interest in the mill, is one of the proprietors of the co-operative store, and is a part owner of the Farmers' Elevator Company, hundreds of these companies being now scattered over the agricultural states. The elevator companies handle the farmer's grain and teach him the broader features of transportation and trade, leading him out into a wider view of business. He has dropped his isolation and become a factor in the industrial and financial life of today.

Where of old he spent the long evenings brooding over fancied wrongs and came to believe himself a victim of

machinations and of circumstances, now he goes out and helps to manage and is a part of the industrial world.

Farms west of the Mississippi River that sold seven years ago for \$40 an acre are now worth twice or thrice that sum. Why? They do not raise larger crops, they are no nearer to town, they have no richer soil. The owner of one, who has seen the value of his homestead of a quarter-section (160 acres) enhance from \$1.25 an acre to \$16,000, put it in a nutshell when he said:

"It is the increase of comfort and of convenience that makes it worth more. When I can talk to every other farmer, every merchant, and every buyer of my products over the telephone, when I can get the news of the world by carrier every morning, when I can save enough time out of the day

to give me opportunity to enjoy the things that folks in town enjoy, it makes my farm worth more as a home, and that value has increased more than the value of the products I can sell."

"But you still rise at five o'clock in the morning?"

"Well, the habits of the farmer do not change so easily; but I notice that my young folks do not get up as early as I did when I was young, and if we get things a little better systematized, I expect that it will not be long before the eight-hour day will be the rule on the farm as well as in the factory."

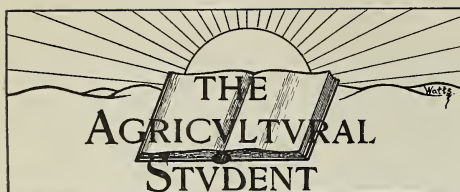
That may be long years coming, but as the farmer's work is accomplished in less time, it will be either that or he will have more leisure than he ever has had since the first tiller of the soil awaited sun and rain.—The Outlook.

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## Water Power Is Idle

The latest government reports show that the total development in the United States represents 5,356,680 horse power, the number of wheels being 52,827, or an average development per wheel of about 180 horse power. The state of New York possesses the largest water power development, the total being 885,862 horse power. The state ranking second in this development is California, with a total of 466,747 horse power, distributed among 1,070 wheels. The third

in rank is Maine, with a total development of 343,096 horse power, generated by 2,797 wheels. The reports show further that the total available power of the surveyed portion, including storage possibilities, is about 53,000,000 horse power, and as only about one-fourth the total area of the United States is now surveyed, the available power for the whole United States may reach at least 200,000,000 horse power and probably more.



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### Editorial

Again it is time for The Agricultural Student to begin its work for another year. It is with this issue that the seventeenth era of its existence will be begun. We sincerely hope that the same tone, purpose, and college spirit shall ever be maintained and increased with renewed energy for the ensuing year. We shall merely take up the work where it was left off and will endeavor to make it one of the best, if not the best, year of its career.

It is hoped that the students of the department, and the members of the

Agricultural Society especially, will feel a personal responsibility and will cheerfully rally to the aid of the Student staff, to assist in the great work which we believe can be accomplished. Make it a personal matter and do not wait for the other fellow to start first. It is your magazine and see to it that it is your ideal. We would be very glad for suggestions and contributions at any time from persons who have been with us and have gone; from those whom it may come in contact; or from those who have never been with us, but are doing the same work and are thus interested.

The Student is a magazine for agricultural students, that is, students in the broadest sense of the word, whether on the farm or in the college. A man whose work lies in this field is a student, although he may not appreciate the fact.

The future is like a cloud of darkness, for as we look forward we can discern nothing; as we approach they become dimly visible and finally become distinct. We may hope and wish for things, but are never sure until in actual contact with them. However, everyone should endeavor to make the most of his opportunities, no matter how great or small. It is said that everyone has his future in his own hands and upon him alone depends what shall be the outcome. Each one is fitted for some particular thing and there is a place for everyone.

The Student wishes to extend greetings to its old and new readers and especially to the new members of the College of Agriculture, who, it is hoped, will become intimately associated and a part of it. To all the staff feels a great responsibility and will endeavor to make this year one of great educational benefit.



# The Boys' Corn Clubs in the Southern States

By J. H. Stevenson, Sec'y of National Corn Exposition

The following, concerning the work of boys' corn clubs in the Southern states, will be of interest to the readers of *The Agricultural Student*:

"With so many object lessons of good farming in so many communities it is certain that methods of farming will be improved and census figures of corn production in the Southern states will be greatly enlarged," said Professor Martin in discussing the work. Continuing, he said:

"The energy, the observation, the systematic work and determination of these boys will certainly make a permanent contribution to the development of manhood."

Altogether about \$25,000 has been raised for prizes in the various localities of the South. Nearly all of the departments of agriculture have special contests in which good prizes are offered. State fairs offer liberal prizes. Boards of trade, associations of bankers and other business men have given generously, and editors have tendered valuable aid.

It may be stated that certificates of merit are issued by the boys by the governors and state superintendents of public instruction in every Southern state upon conditions as follows:

"The yield must not be below 75 bushels and the cost per bushel must not exceed 30 cents. Each boy must submit a 10-ear exhibit and a written record of his work."

There are 46,225 boys in the Southern states who are members of the corn clubs and who are raising corn which Dr. Knapp wishes to demonstrate at the National Corn Exposition to be held in the buildings on the Ohio State Ex-

position grounds at Columbus, January 30 to February 11, 1911.

The basis of awards of prizes in corn clubs in the South is as follows:

Yield, 30 per cent.; 10-ear exhibits, 20 per cent.; showing of profit, 30 per cent.; written record, 20 per cent.

More than 425 agents in the South give a considerable amount of supervision to the work throughout the year.

A Brush runabout automobile will be given through the National Exposition as a prize to the boy who makes the best showing.

Dr. Knapp offered a prize trip to Washington to the Mississippi boys last year. The Bankers' association of Arkansas duplicated the offer in that state; interested citizens did likewise in South Carolina and Virginia. The secretary of agriculture gave diplomas to the four boys and they received other marked attentions during the week they spent in the Nation's capital. This fall every Southern state will send a boy on the prize trip, and some way be sent to participate in person in the big National show to be held in Columbus, January 30 to February 11, where Dr. Knapp, with his able assistant, Professor Martin, will have a most splendid exhibit of the boys' clubs' work, having already been assigned a desirable space in one of the big exhibit halls.

With reference to "net profits" being considered as of more importance over the best 10 ears, and ranking with the best yield, in the award of prizes, Dr. Knapp gives the following lucid explanation:

"It is possible for a farmer to make a very large yield at such an increased expense that there is no profit. Inas-

much as the farmer raises the corn almost solely for profit it looks as if profit ought to be a great consideration and hence the greatest net income from an acre is more important than even the largest yield. In regard to the 10 ears, our experience has shown that frequently the best ear of corn does not produce the best corn. It may have been an exceptional ear with a very poor environment and hence in production it will show its percentage. We prefer always to select our corn in the field and know

that we not only have a good ear but that all the ears about it are good ears, which determines really the parent stock of the future corn. I think altogether too much importance has been given the best 10 ears. They may be worthy of a prize, but should not receive a very large one."

The boys' clubs' exhibit will be watched for with great interest by the thousands of agriculturists and others from all sections of the country who will attend the coming Corn Exposition.

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## Conserving the Moisture in Corn Ground During Drouths

By Earl Jones

The drought which has been present in nearly all parts of Ohio during July has seriously injured the coming corn crop. Corn requires a large amount of water to produce a full crop and especially is it needed when the ears are forming. Any deficiency in rainfall during the summer months is always followed by a corresponding decrease in the corn crop.

The farmer cannot control the amount and the distribution of the rainfall and it would seem that the size of the corn crop depends entirely upon weather conditions. But men have learned that they can to some extent increase the corn crop in dry seasons by conserving the moisture already present in the soil. The most effective method of doing this is to keep an earth mulch on the surface of the corn ground. An earth mulch is a layer of loose, dry earth, two or three inches deep, on the surface of the ground.

During hot, dry weather water is constantly being evaporated from the surface of the soil. Capillary action draws water from below to replace that

lost by evaporation. When ground cracks a large amount of water is lost by evaporation. In hot midsummer so much water may be lost from the soil that it becomes too dry for plant growth.

An earth mulch prevents water from being carried to the surface by capillary action and prevents to a great extent the loss of water from the soil by evaporation. If an earth mulch is kept on corn ground during the preparation of the seed bed and the growth of the crop, there will be more moisture for the crop to use when the ears are forming. Most farmers keep a good earth mulch on their corn ground during the month of June when it is being cultivated, but when harvest time comes they "lay their corn by" and cease cultivating it. This brings no bad results if there is plenty of rainfall during midsummer. But if a drought occurs, the soil hardens and cracks open and a large amount of moisture is lost which is badly needed by the growing corn. This loss of moisture can be pre-

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## NEWS NOTES



### Wheat Special

The College of Agriculture and Experiment Station, under the direction of Supt. A. B. Graham, of the Extension Department, ran a Wheat Special over the Pennsylvania lines, making stops of one hour each. On Aug. 22d it ran from East Palestine to Orrville; Aug. 23rd, from Orrville to Bucyrus; Aug. 24th, from Bucyrus to Middlepoint. The train was composed of three cars for lectures.

The instructors were Director Chas. E. Thorne, C. G. Williams and F. A. Welton, of the Ohio Experiment Station, Profs. A. G. McCall, E. D. Waid, H. C. Ramsower, W. H. Darst and F. E. Bear, of the College of Agriculture.

The lectures were on the Preparation of the Seed Bed, Varieties, Fertilizers and Rotations, bearing directly upon the wheat crop in Ohio.

An interesting article in the World's Work on the "Passing of the Man with the Hoe," by Edward A. Rumeley, gives some astonishing figures. It says: "To plow five square miles by the recent method the farmer walks the distance around the world. This plodding method of toil is to be ended by machines which will only require the energy stored in one acre of potatoes to plow two hundred acres." This, he says, is the answer to what we must do to be fed.

Quite extensive changes have been made in the Crops Laboratory. A very much needed, up-to-date storage room, a well-equipped research laboratory, an herbarium room and newly arranged laboratory rooms have been built.

### Agricultural Education Train

On August 16th, 17th and 18th an agricultural educational train was run over the B. & O. from Akron to Columbus by way of Sandusky, Mansfield, Belleville and Mt. Vernon, under the direction of Dean H. C. Price.

The train was made up of three lecture coaches and one exhibition coach and lectures of one and one-half hours each were given at the various stops.

The lecturers were from the Agricultural College and the Experiment Station and consisted of Director C. E. Thorne and Profs. A. G. McCall, F. E. Bear, C. G. Williams, E. D. Waid and H. C. Ramsower.

Addresses were given on "The Preparation of the Seed Bed," "Selection of Best Varieties of Seed Wheat," and "Barnyard and Commercial Fertilizers."

Among the many changes which are taking place in the University Faculty this year, there are none which will occasion more general regret than the resignation of Prof. R. L. Shields, of the Department of Animal Husbandry. He was a graduate of the class of 1907 and for the past year has been an extension worker in Animal Husbandry. Prof. Shields has accepted a call from the Mississippi Agricultural and Mechanical College at Starkville, to which place he goes as Associate Professor of Animal Husbandry, having complete charge of all instructional work in that institution.

Prof. H. C. Ramsower and Supt. A. B. Graham lectured at the Coshocton Chautauqua on August 13th.



The Department of Animal Husbandry purchased in July from Dr. H. M. Brown of Hillsboro, O., yearling and two-year-old Aberdeen Angus heifers, that successfully passed the tuberculin test and are now in the University herd. The University has also bought an imported yearling Shropshire ram from Chandler Bros., of Chariton, Iowa, he being imported especially for the University. Ohio State has also bought a new Berkshire boar, of spring farrow, of Sheffield Farm, Glendale, O.. This is a son of the famous Baron Duke 50th, one of the noted sires of the day, and that died last winter. The University purchase was out of a daughter of the great Masterpiece, the most noted Berkshire sire of the last ten years.

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The force employed by the Extension Department has been busily engaged in preparing equipment to be used for demonstration work at county fairs and in the extension schools. Two large tents have been secured which are being equipped with tables and rack material on which will be shown exhibits, representative of work of the various departments of the College of Agriculture.

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Prof. C. S. Plumb gave a course of instruction in Animal Husbandry before short course students at the Mississippi Agricultural and Mechanical College for the week of Aug. 15-20. Prof. Plumb also judged the dairy cattle at the Blue Grass Fair at Lexington, Ky., Aug. 10, and is scheduled to judge the dairy cattle at the Indiana State Fair, Sept. 12-16.

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Prof. A. G. McCall spent a week in Washington, attending a meeting of the Crop Reporters' from the United States.

A bulletin which will be of considerable help to the farmer has recently been issued by the Extension Department. The bulletin deals with the many troublesome questions confronting the farmer in the selection and proper use of grain drills. The author is Prof. H. C. Ramsower.

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Prof. J. C. McNutt, 1907, Ohio State, holding the position of Associate Professor of Animal Husbandry at the New Hampshire State College, was employed by the Massachusetts Agricultural College at Amherst, to give the instruction in Animal Husbandry to the summer school classes there.

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Supt. A. B. Graham made a tour of the Middle West during the early part of August and among other meetings he addressed the State Association of County School Superintendents, held at Kansas Agricultural College, at Manhattan, Kansas.

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W. L. Clevenger, of the Dairy Department, has been spending his vacation on a trip through the Middle West, visiting the State Agricultural Colleges of Wisconsin, Minnesota, Iowa, Illinois and Indiana.

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Henry W. Vaughan, 1908, Ohio State, last year Assistant in Animal Husbandry, was promoted to Assistant Professor at a July meeting of the trustees, and given a substantial increase in salary. Several other colleges endeavored to negotiate Prof. Vaughan from Ohio State, but without success.

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F. E. Bear has returned from Wisconsin Agricultural Summer School, having also spent some time at the Graduate School at Ames, Iowa. He has been pursuing his chosen line of work.

B. L. Thompson, 1908, Ohio State, Instructor in Animal Husbandry at the South Dakota Agricultural College, visited the University in July, he spending the summer at Pataskala.

George E. Story, B. Sc. in Ag. Ohio State, 1910, has been elected Assistant

in the Animal Husbandry Department, to do work in the Agricultural Extension field.

Prof. H. C. Price lectured on the subjects pertaining to agriculture at the Buckeye Lake Chautauqua, at Summerland Beach, in the early part of August.

## Conserving the Moisture in Corn Grounds During Drouths

(Continued from Page 24.)

vented if the surface of the soil is kept loose and dry by cultivation.

Many farmers in Ohio have followed the practice of cultivating their corn during and after harvest and have obtained larger yields than their neighbors who "laid their corn by." When the corn grows too big to use a cultivator, a single horse plow may be used.

This work is apt to be neglected because of harvesting and other work, but such should not be the case, because an increase in our corn crop is so desirable

that it should be secured if possible. Many farmers believe that corn is injured by cultivation after the brace roots have formed, but it has been found that no injury results if the cultivation is shallow, so that the roots are not injured.

The farmer should aim to keep a soil mulch on the surface of the corn field so that the corn will not "fire" or dry out during periods of scanty rainfall. A full crop will not be produced in a dry season, but the yield will be increased.

## Nearly Nine Billion Dollars from the Soil

Most prosperous of all years is the place to which 1909 is entitled in agriculture. The yield has been bountiful with most crops, and prices have been high. Advantageously situated as he is in most respects, the farmer is less and less generally compelled to dump his crops on the market at time of harvest. He does not need to work for his board and clothes, as he often did in the former time when prices were so low as to be unprofitable.

The value of the farm products is so incomprehensively large that it has become merely a row of figures. For this year it is \$8,760,000,000; the gain of this

year over the previous one is \$869,000,000.

Ten years ago the value of the products of the farm was only five and one-half times the mere gain of this year over 1908; it was little more than one-half of the total value of this year. The value of the products have nearly doubled in ten years.

If the total value of the farm products in 1899 as established by the census, is placed at 100, the value for 1903 is represented by 125, for 1904 by 130, for 1905 by 133, for 1906 by 143, for 1907 by 159, for 1908 by 167, and for 1909 by 186.

Eleven years of agriculture, beginning with a production of \$4,417,000,000 and ending with \$8,760,000,000! A sum of \$70,000,000,000 for the period!

It has paid off mortgages, it has established banks, it has made better homes, it has helped to make the farmer a citizen of the world, it has provided him with means for improving his soil and making it more productive.

In the statement that follows concerning the crop quantities and values for 1909 no figures should be accepted as anticipating the final estimates of this department to be made later. Only approximations can be adopted, such as could be made by any competent person outside of this department.

The most striking fact in the world's agriculture is the value of the corn crop of 1909 in this country. It is about \$1,720,000,000.

It nearly equals the value of the clothing and personal adornments of 76,000,000 people, according to the census of 1900. The gold and silver coin and bullion of the United States are not of greater value.

This corn came up from the soil and out of the air in one hundred and twenty days—\$14,000,000 a day for one crop, nearly enough for two Dreadnoughts daily, for peace or war.

The value of this corn crop is the highest of record and it is greater than the average of the five preceding years by 36 per cent., while the farm price per bushel is greater by 32 per cent. The price per bushel on November 1, 62.2 cts., has been exceeded in only two years in the records of the Department of agriculture, beginning with 1866.

In quantity of production this year's corn crop stands second, with 2,767,000,000 bushels, being exceeded by the crop of 1906, but it is greater than the aver-

age crop of the five preceding years by 3.5 per cent.

Cotton is now by far the second crop in value, and this year's crop is easily the most valuable one to the farmer that has been produced. With cotton lint selling at 13.7 cents at the farm November 1, and cotton seed selling for about \$25 per ton, the lint and seed of this crop are worth about \$850,000,000 to the farmer. No other cotton crop since 1873 has been sold by farmers for as high a price per pound as this one.

There have been three cotton crops of more than 13,500,000 bales of 500 pounds gross weight, the first one being in 1904, and commercial expectations are that the crop of this year will be below the average of the five years preceding.

Third in order of value among the crops is wheat, worth about \$725,000,000 at the farm, and this exceeds all previous values by a large amount. The November farm price was almost an even \$1 per bushel, and its equal can not be found until as long ago as 1881. The total value of this year's crop is greater than the five-year average by 34.6 per cent.

In 1901 and in 1906 slightly larger crops of wheat were produced, so that the yield of this year, 725,000,000 bushels, is third in size.

For years hay and wheat disputed with each other the honor of the place next after cotton in value, but this year the separation is distinct, and hay, with its value of about \$665,000,000, is considerably below wheat and far below cotton. Only in one year, 1907, has its value been overtopped, and it is 10 per cent. above the five-year average. The quantity of the hay crop, 64,000,000 tons, has several times been greater than it is this year, although it is now 2.6



per cent. above the average of five years preceding.

The fifth crop in order of value is oats, worth this year at the farm about \$400,000,000, which is considerably above high-water mark, and is greater than the five-year average by 28 per cent. The price of November 1, 41 cents, is high, and only in 1907 and 1908 has it been higher since 1890. In

bushels, or 24 per cent. above the five-year average.

Tobacco is now marketed under circumstances that secure a higher price per pound than farmers have received since 1865, except in two or three years. Since 1905 the farm price has been 10 cents or better. The farm value of this year's crop is a little under \$100,000,000 and has not been equalled. It is

**Comparative Table Showing Increase in Principal Farm Products, 1909 Over 1908.**

Staple.	1909	1908.	Increase.
Corn .....	\$1,720,000,000	\$1,615,000,000	\$105,500,000
Cotton .....	850,000,000	642,000,000	208,000,000
Wheat .....	725,000,000	618,000,000	107,000,000
Hay .....	665,000,000	636,000,000	29,000,000
Oats .....	400,000,000	378,000,000	22,000,000
Potatoes .....	212,000,000	197,000,000	15,000,000
Tobacco .....	100,000,000	82,000,000	18,000,000

Increase of all Farm Products in 1909 over 1908.....\$869,000,000

production this crop is very nearly a leader, with its 984,000,000 bushels, and would have been a leader had not the crop of 1902 been about 4,000,000 bushels larger. It is greater than the five-year average by over 12 per cent.

This year's crop of potatoes is more valuable than any one before produced and is worth about \$212,000,000. It is above the five-year average by 25 per cent. The November price, 57.8 cents per bushel, has often been exceeded.

The large production is what makes the crop so valuable, a production that has not been equalled; it is 367,000,000

nearly 50 per cent. above the five-year average. This great value is principally due to the fact that the crop is the largest ever raised, with about 900,000,000 pounds, or one-third greater than the average of five years.

It is too early to foresee the amount of the beet sugar of this year's campaign, but the indications are about 500,000 short tons, or a greater crop than any before produced. The value of the sugar and of the beet pulp for feeding purposes is about \$47,000,000, an amount that has not been reached in any earlier year.—The Dairy Bulletin.

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## RULES OF THE CONTEST.

1. Subscriptions of students will not count. That is, although any student can compete, his list must be made up of names outside the student body of O. S. U.

2. Every one who secures at least ten (10) such subscriptions to The Agricultural Student shall be eligible to compete for the prizes.

3. A cash commission of 10 per cent. will be allowed on all subscriptions from those eligible to compete.

4. The prizes shall be of the following value, and shall be awarded to those securing the largest number of subscriptions.

<b>First</b> .....	<b>\$2.00</b>	<b>Sixth</b> .....	<b>\$0.75</b>
<b>Second</b> .....	<b>1.50</b>	<b>Seventh</b> .....	<b>.75</b>
<b>Third</b> .....	<b>1.50</b>	<b>Eighth</b> .....	<b>.50</b>
<b>Fourth</b> .....	<b>1.00</b>	<b>Ninth</b> .....	<b>.50</b>
<b>Fifth</b> .....	<b>1.00</b>	<b>Tenth</b> .....	<b>.50</b>

5. A special prize of \$2.00 cash will be given to the person turning in the largest number of subscriptions before midnight, Saturday, Sept. 10th.

6. Prizes will be paid promptly on completion of contest.

7. Contest ends at midnight, Saturday, October 1st.

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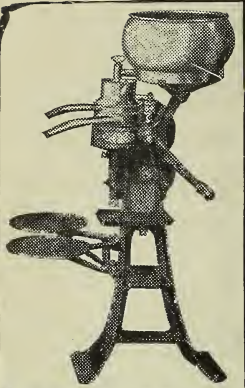
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